

# **EXHIBIT 2**

**Supplemental Report by  
Jennifer L. Biggs, FCAS, MAAA  
*In Re: W.R. Grace & Co., et al.***

**Expert Estimation of  
Asbestos Personal Injury Liabilities of  
W.R. Grace as of April 2, 2001**

September 25, 2007

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**I. INTRODUCTION AND SUMMARY**

On behalf of David T. Austern, the Court-appointed Legal Representative for Future Asbestos Personal Injury Claimants, I, Jennifer L. Biggs, F.C.A.S., M.A.A.A., respectfully submit this supplemental report concerning my independent estimate of the liability of W.R. Grace & Co. ("Grace") for pending and future asbestos personal injury ("PI") claims as of the date of Grace's bankruptcy petition, April 2, 2001. This report contains supplemental information and updates my estimates of Grace's liability that were originally submitted in my report dated June 18, 2007 (the "Biggs June 18 Report") and my subsequent errata letter of July 23, 2007 (the "July 23 Errata").<sup>1</sup>

The estimates set forth in this report are predicated on a number of assumptions as to future conditions and events. These assumptions are documented in subsequent sections of this report, and should be understood in order to place the actuarial estimates in their appropriate context. The complete report, including the Analysis Documentation (to be produced separately, along with any other reliance materials) and all supporting materials should be considered in their entirety before any judgments are made about the opinions and conclusions provided in this summary.

For the convenience of the Court and the parties, this supplemental report and accompanying Analysis Documentation provides the sum and substance of my estimation methodology, analysis and conclusions in this matter, and is designed to minimize the need to refer back to my prior work. As such, this report repeats much of the explanatory information that was previously provided. The July 23 Errata resulted in quantitative changes to the Biggs June 18 Report (and to the underlying Analysis Documentation), and also contained textural edits and clarifications. Rather than burden the reader with cross-references, those changes are now reflected in this one supplemental report.

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<sup>1</sup> For future reference herein, I define my "prior work" as the Biggs June 18 Report, the July 23 Errata Letter, and the corresponding Analysis Documentation and other reliance materials.

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The main difference between the analysis and estimates in this supplemental report and my prior work relate to my use of updated assumptions about the number of future personal injury asbestos claims projected to be filed against Grace. These new assumptions are based on new claims run-off analysis completed on August 21, 2007 by Professor Eric Stallard.<sup>2</sup>

This report, together with any testimony that I may give in this case, is for use solely in connection with the estimation hearing on Grace's asbestos personal injury liability in this case. This report (and any testimony that I may give) is not intended, and should not be used, for any other purpose.

**A. Summary and Supplemental Opinions**

My best estimate of Grace's asbestos personal injury liability is \$8.9 billion on an undiscounted basis. When reduced to present value as of the petition date using a 5.25% interest rate, the estimated liability is \$3.8 billion.

My estimate is based on projecting the quantity and type of future asbestos personal injury claims filed against Grace for up to 59 years after the petition date, i.e., from April 2, 2001 to the year 2059. It also includes a provision for the known pending asbestos personal injury claims filed against Grace on or before the petition date. I calculated the total liability by multiplying the known pending and projected future claims filings (both reduced for expected dismissals) by the expected average payment amounts that Grace would pay to claimants in each of the years in the projection. This is referred to as a frequency/severity model, and the basic liability calculation is as follows:

$$(\text{Total Claims} - \text{Expected Dismissals}) \times \text{Average Payment Amounts} = \text{Liability}$$

Because my results reflect certain assumptions about both the future asbestos claims against Grace and the overall asbestos litigation environment that cannot

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<sup>2</sup> I understand that Professor Stallard's updated claims run-off analysis will be described in his supplemental expert report, dated September 25, 2007.

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be predicted with absolute certainty, I have included a range of estimates within which my “best estimate” falls. While the best estimate reflects my opinion regarding the most reasonable estimate as to how Grace would have continued to monetize its asbestos personal injury liabilities in the tort system, the low and high ends of the range reflect different assumptions about the number of claims and the cost to Grace to resolve those claims.<sup>3</sup> In my opinion, the range of Grace’s asbestos personal injury liability is \$7.4 billion to \$11.9 billion on an undiscounted basis, and \$3.2 billion to \$5.0 billion discounted. In view of the fact that the range is not symmetrical around my best estimate, there is considerably more risk that my best estimate could prove to be too low, as opposed to the risk that my best estimate might be too high. In any event, the range represents what I believe to set the high and low boundaries of reasonable estimates, and I would not characterize amounts falling outside my range as reasonable.<sup>4</sup>

As set forth in greater detail in the Biggs June 18 Report, my estimates derive from a methodology consistent with actuarially-based estimations accepted by various courts, including the United States District Court for the District of Delaware, in prior asbestos bankruptcy cases.<sup>5</sup> Consistent with accepted methodology and court decisions, I was instructed to assume that Grace’s bankruptcy did not occur and that

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<sup>3</sup> My “best estimate” reflects judgments at each step of my analysis that I believe are neither too low nor too high, except as noted. For example, I have not attempted to quantify the effect of certain events subsequent to Grace’s bankruptcy that might cause my estimates to be too low, such as the negative publicity stemming from the Libby indictments and the ongoing ATSDR studies as discussed on pages 15-16 herein. In contrast, my range is calculated based upon differing assumptions that I believe are too low or too high, but produce the low and high boundaries of reasonable estimates. My best estimate represents the expected value of a range of reasonably possible outcomes.

<sup>4</sup> As with any estimate of future costs and events, my projections and estimates in this report are subject to the inherent limitation on one’s ability to predict the future. In performing my analysis, I have employed actuarial techniques and assumptions that are appropriate, and my analysis and conclusions are reasonable given the information known to me, and they are in accordance with the Code of Professional Conduct of the American Academy of Actuaries and the Actuarial Standards of Practice promulgated by the Actuarial Standards Board. I have not audited the several databases and other factual information that I relied upon, but to the extent that my analysis revealed inconsistencies and/or inaccuracies in the data, I have noted them, and in certain instances I have applied adjustments and/or made certain assumptions to account for such inconsistencies and/or inaccuracies. To the extent that I have done so, my adjustments and assumptions are reasonable, and in accordance with the professional standards applicable to actuaries.

<sup>5</sup> See Biggs June 18 Report at 6-7.

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claims would have been handled through the tort system. My estimates therefore focus on Grace's anticipated liabilities, but for the bankruptcy.

By the term "anticipated liabilities," I refer to the dollar amounts that Grace would be expected to pay to claimants in order to monetize and resolve the pending and future asbestos personal injury claims against it. Thus, my analysis excludes (i) transaction costs (such as attorneys fees and expenses), (ii) recoveries that Grace might receive from its insurers and/or any costs arising from potential insurance coverage disputes, (iii) any asbestos property damage liabilities, and (iv) any non-asbestos claims.

**B. Qualifications**

I am a principal of Towers Perrin and lead the asbestos practice of its Tillinghast business division. Tillinghast provides consulting and software solutions to insurance and financial services companies and advises various other businesses on risk financing and self insurance. I have quantified the potential asbestos liabilities for numerous national and international insurers, reinsurers and corporate asbestos defendants. I co-authored Tillinghast's study regarding the \$200 billion asbestos "universe," published in May 2001.

Under my direction as Chairperson, the American Academy of Actuaries Mass Torts Work Group created a public policy monograph, "Overview of Asbestos Issues and Trends," originally released in December 2001 and updated in August 2007, as well as an Asbestos Issue Brief released in February 2006. I am a frequent speaker on asbestos liability estimation, and I testified before the United States Senate Committee on the Judiciary and the National Conference of Insurance Legislators regarding asbestos issues. My curriculum vitae and list of my speaking engagements and publications is set forth in Exhibit 1. A list of materials that I relied upon in performing my analysis is attached hereto as Exhibit 2.

**C. Grace Asbestos Products and Activities**

Grace's asbestos liability arises from its activity as both a miner and manufacturer of asbestos-containing products. Some of Grace's products continued to

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asbestos-related, and unknown.<sup>15</sup> Having compiled the above basic claim information about each claim, I then segregated the total known claims filed against Grace into two categories: (i) closed, dismissed and inactive claims, and (ii) open and liquidated “but unpaid” claims.

For a number of claims, the disease information in CMS was unknown. I therefore conducted supplemental investigations to identify the likely disease associated with closed claims for which the disease type in CMS was listed as “asbestos-related” or “unknown,” as well as each of the open or liquidated claims. This involved matching CMS claimant data with probable matches to their respective claim information in the Manville Trust database and/or the Rust response database. This yielded supplemental disease information for many claims.<sup>16</sup>

Based on disease information from all three sources, I selected a single illness for each claimant. For some CMS claimants, however, the disease types listed in CMS, Manville, and Rust differed. Where inconsistencies involved mesothelioma, Dr. Roggli scrutinized the underlying PIQ responses and attachments. This review contributed to my analysis of which of the sources is more accurate. I concluded that the disease information in Manville is the most accurate, and more reliable than the Rust information. Even after supplementing disease information from the other sources, there were remaining claims with unknown disease types. For these I allocated disease diagnoses based on the distribution of the “matched” claims. The following charts show the distribution of claims filed before and after the allocation of unknown claims.

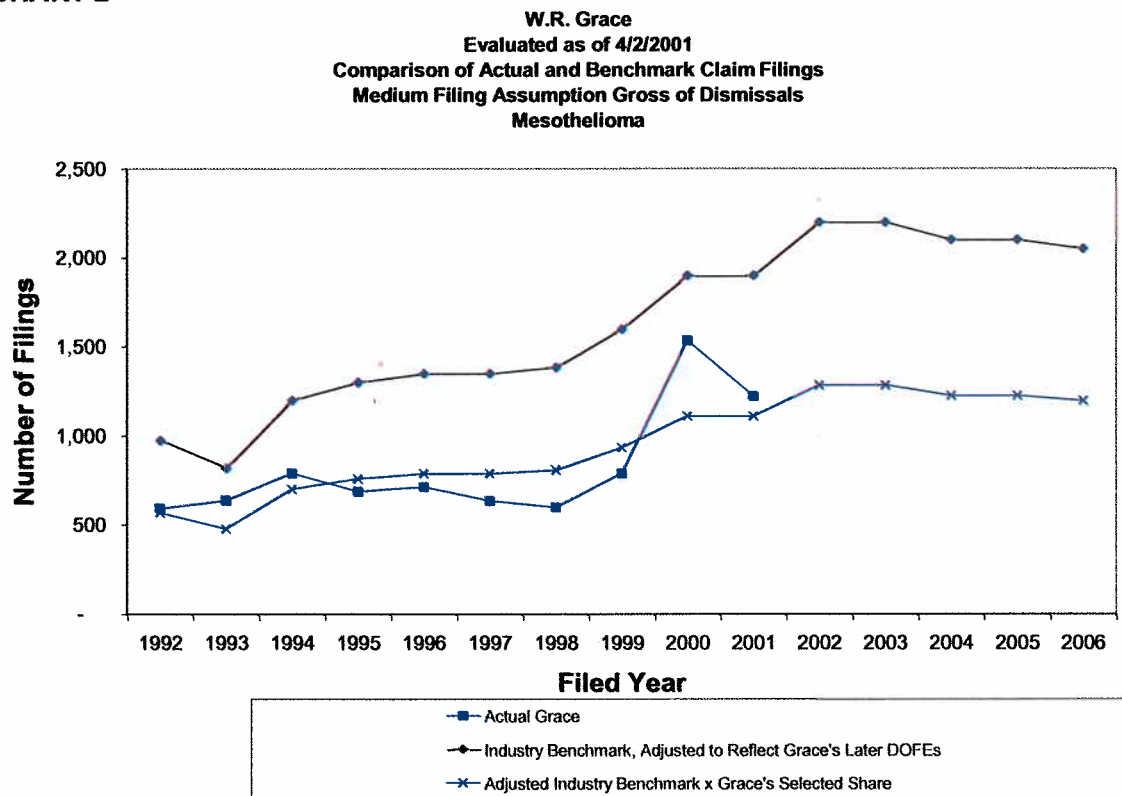
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<sup>15</sup> Grace’s CMS claims database contains ten possible illness descriptions. For purposes of my estimation, I assigned to each of the ten CMS illness descriptions one of the corresponding seven disease types listed above. For example, CMS contained separate illness descriptions for Asbestosis, Pleural Disease, Pleural Changes and Pleural Thickening, and I assigned all four of these for estimation purposes to the disease type “Nonmalignant.”

<sup>16</sup> Manville Trust data is a reliable source for supplementing claimant information because the Trust has been in place for many years and most asbestos plaintiffs have filed a claim against the Trust.

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**CHART 2**



Note:  
2001 is actual through 4/2/2001 and projected through 12/31/2001.

Grace's share averaged 58.4% of total mesothelioma claims filed from 1997 – 2001. I also show the industry benchmark pattern of total historical mesothelioma claims adjusted to the level of Grace's share, by multiplying the industry pattern by 58.4%. While in some filing years the industry pattern reflecting Grace's share is higher than Grace's actual filings, for other years it is lower, and overall, Grace's experience tracks with the shape of the industry pattern, demonstrating that Grace was subject to similar trends in filing experience as other defendants.

For my projections underlying my prior work, I had reviewed and incorporated studies of future claims experience performed for the Manville Trust by Eric Stallard and Kenneth Manton in connection with fairness hearings on the Trust. However, because the 1993 – 1994 Stallard and Manton work for the Manville Trust fairness hearings relied on claims data from the Manville Trust from 1990 – 1992, and

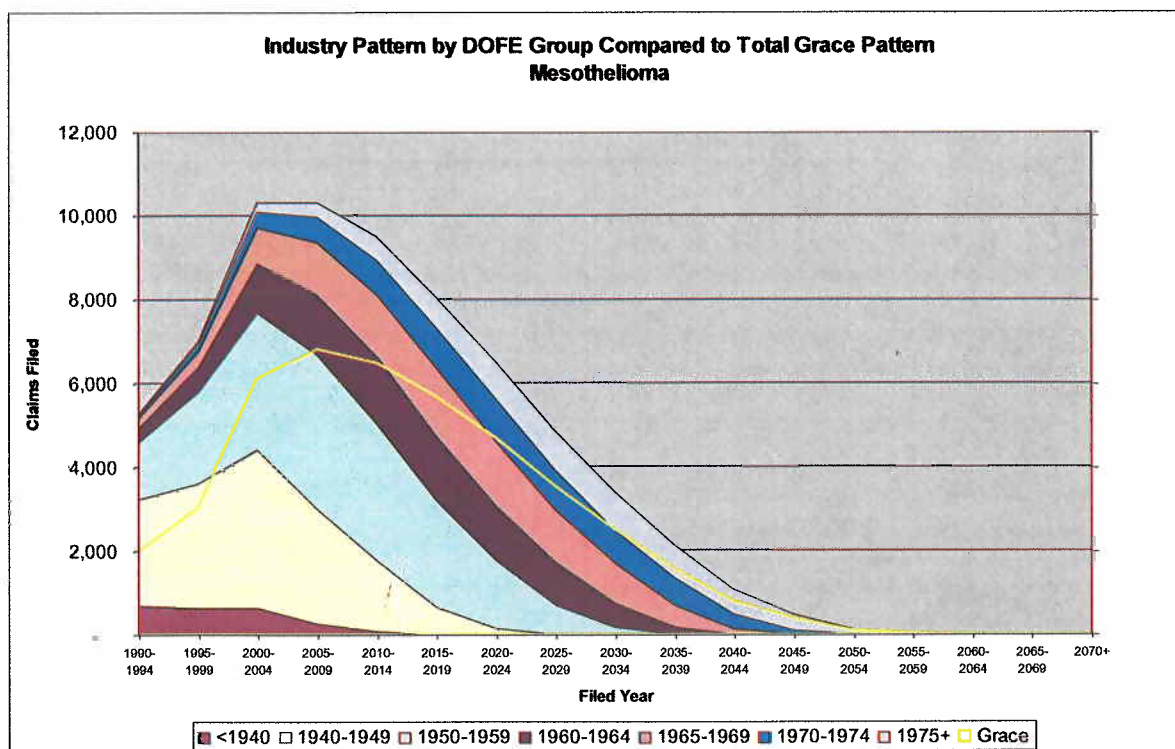


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given the long latency of asbestos diseases (ten years or more), that data could not fully reflect the experience of individuals with later DOFEs, i.e. DOFEs in 1975 and beyond.

For this supplemental report, however, I have instead reviewed and incorporated into my work a new claims run-off analysis prepared by Professor Stallard on behalf of the FCR. By “claims run-off” I am referring to the annual rate of decline in the number of future claims compared to a current base level. The claims run-off patterns by disease type that I use in my analysis vary by (among other things) the claimants’ date of first exposure (DOFE). Professor Stallard’s updated run-off analysis is based upon Manville data for claims filed from 2002 – 2006 and, as such, reflects more recent and relevant information, and a larger volume of claims. As a result, claims arising from individuals exposed to asbestos up through 1990 can now be included in future projections. The chart below incorporates Professor Stallard’s updated run-off analysis and shows the composition of the **industry** mesothelioma claim filing pattern by DOFE.

**CHART 3**

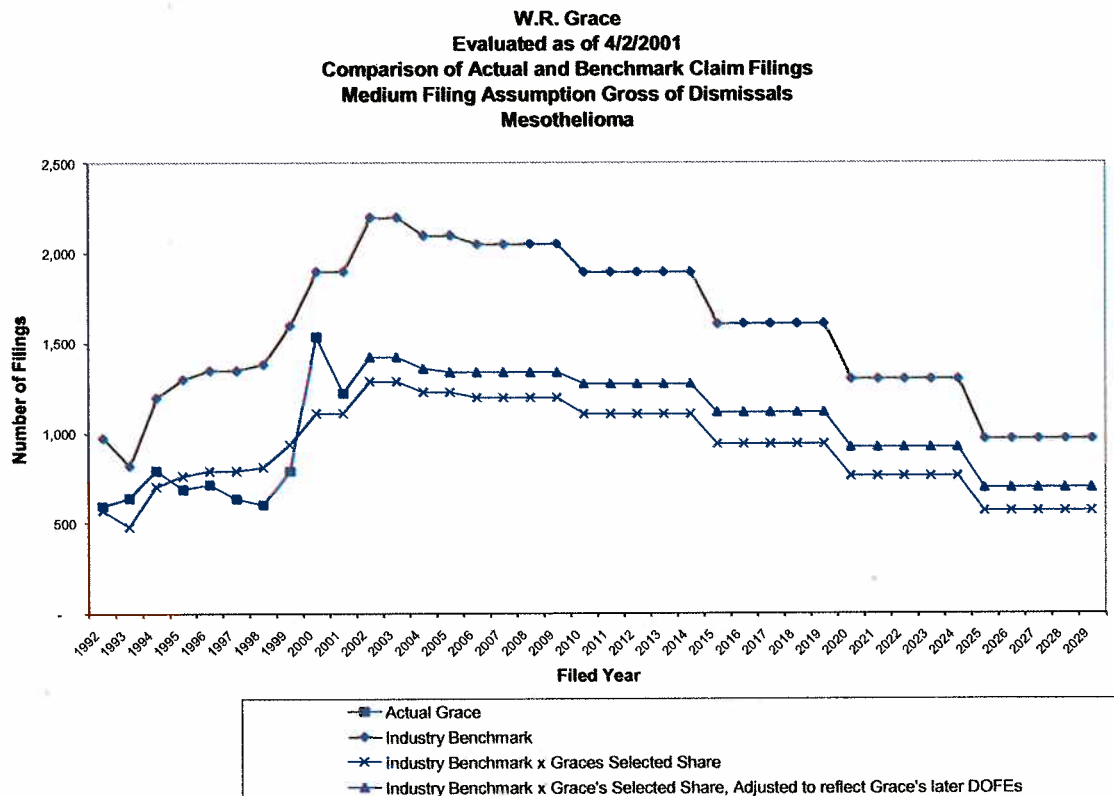


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Grace's distribution of mesothelioma claims filed from 1995 – 2001 has significantly later dates of first exposure than represented in overall industry data as depicted by Manville.

I then selected and applied ratios representing Grace's share of historical industry filings by disease type to my estimates of total future asbestos claims filings, adjusted to reflect Grace's later DOFEs (as compared to other companies whose asbestos use ended much earlier). The following chart shows Grace's mesothelioma share of 58.4% multiplied by the industry mesothelioma filing pattern, with and without adjustment for Grace's later DOFE distribution.

**CHART 4**



Note:  
2001 is actual through 4/2/2001 and projected through 12/31/2001.

In the adjusted pattern, the run-off (or annual decline in the level of claims) is slower, to reflect that the population exposed to Grace's products, on average was exposed later, and therefore will file claims further in the future.

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**3. Estimate Claim Dismissals**

Third, I estimated the number of claims that would be dismissed without payment. My dismissal estimates are based on a review (separately by disease type and jurisdiction) of Grace's historical claims that it closed without payment (or dismissed), relative to its total closed claims. For malignant claims, I assume identical dismissal rates for pending and future claims. For nonmalignant claims, however, I expect that state legislative and judicial changes to the tort system will result in a significant increase in dismissal rates.

**4. Calculate Average Payment Amounts**

Fourth, I calculated the expected average amounts payable to claimants, trended to future years of payment, also referred to as "Settlement Years." For historical periods, I rely on the upward trend in Grace's own data, compared to increases other asbestos defendants were experiencing during the relevant time period. For future periods, I consider various factors affecting claim costs, including the effect of changes to the various state tort systems, claimant aging, and inflation. I refer to the combined effect of these factors on average claim payment amounts in each future year as the "trend."

**5. Calculate Future Claim Liability**

Fifth, based on the above information, I calculated Grace's future and pending asbestos personal injury claim liability. The product of the expected number of future claim filings (less dismissals) and the average payments (adjusted for trend) is the undiscounted estimated liability for a given filing year. The total of this product across all disease types, state groups, and filing years is Grace's undiscounted estimated future liability. Similarly, the provision of pending claims is calculated as the product of the pending claim counts multiplied by the selected dismissal rates multiplied by the average payments, by disease type and state group.

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average claim sizes in the future. Accordingly, my claims projections and future liability estimates for Grace are based upon separate underlying analyses that I performed for each of following jurisdictions:

- California
- Florida
- Georgia
- Illinois
- Mississippi
- New York
- Ohio
- Pennsylvania
- Texas
- West Virginia
- Libby, Montana
- All Other States

I note that 44 non-U.S. claims were filed prior to 1992 and all of them were reported as closed without payment. Because of the low number of filed claims, the fact that no claims have been paid and the lack of any non-U.S. claims since 1992, I have not projected any future non-U.S. liabilities. In contrast, Manville has had thousands of non-U.S. mesothelioma claims filed in recent years, mostly from Germany. Nevertheless, I regard the projection of any such claims for Grace as speculative at this point in time.

**B. Step 2: Projection of Future Claim Filings**

To estimate Grace's future asbestos claim filings, I reviewed ratios of Grace's historical claims relative to Tillinghast's estimate of the total historical number of U.S. asbestos claimants by disease type. I then applied the ratios representing Grace's share of total historical filings to estimates of total future asbestos claim filings (against any defendant), adjusted to reflect Grace's later dates of first exposure ("DOFE"). I performed this procedure separately for mesothelioma, lung cancer, other cancer, and nonmalignant claim filings.

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**1. Grace's Share of Total Historical Claims**

I reviewed data available from the RAND study,<sup>44</sup> the Manville Trust, *En Banc*,<sup>45</sup> and several corporate defendant disclosures from SEC filings to estimate the actual number of total claimants (against any defendant) by disease and by year.

The chart below shows incidence and claim data for mesothelioma. The incidence of mesothelioma disease (using estimates extrapolated from SEER<sup>46</sup> data) has been fairly stable. Mesothelioma deaths, as recorded on death certificates and tabulated by the CDC<sup>47</sup> through 2004 are lower (and perhaps understated), at approximately 2,600 per year. More recent data regarding incidence and deaths is not available.

As noted in Chart 5, the number of mesothelioma claims reported by both RAND and Manville<sup>48</sup> increased significantly from the late 1990s. I believe that the increase in mesothelioma claims mainly reflects a higher claiming rate (rather than an increase in mesothelioma incidence) resulting from higher diagnoses rates due to greater awareness of asbestos as the cause of the disease, and more public attention to the compensable value of mesothelioma claims for victims and their families.

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<sup>44</sup> Asbestos Litigation, Stephen J. Carroll, Deborah K. Hensler, Jennifer Gross, Elizabeth M. Sloss, Matthias Schonlau, Allan Abrahamse and J. Scott Ashwood. RAND Institute for Civil Justice, 2005, available at [www.rand.org/publications](http://www.rand.org/publications).

<sup>45</sup> Tillinghast purchased the *En Banc* database which includes the number of filed cases and plaintiffs by defendant by jurisdiction. The data was gathered from courthouses across the country; it does not include information regarding the resolution of the claims. The version of the database purchased included claims filed from January 1, 1997 – March 31, 2003. *En Banc* was subsequently purchased by Navigant Consulting.

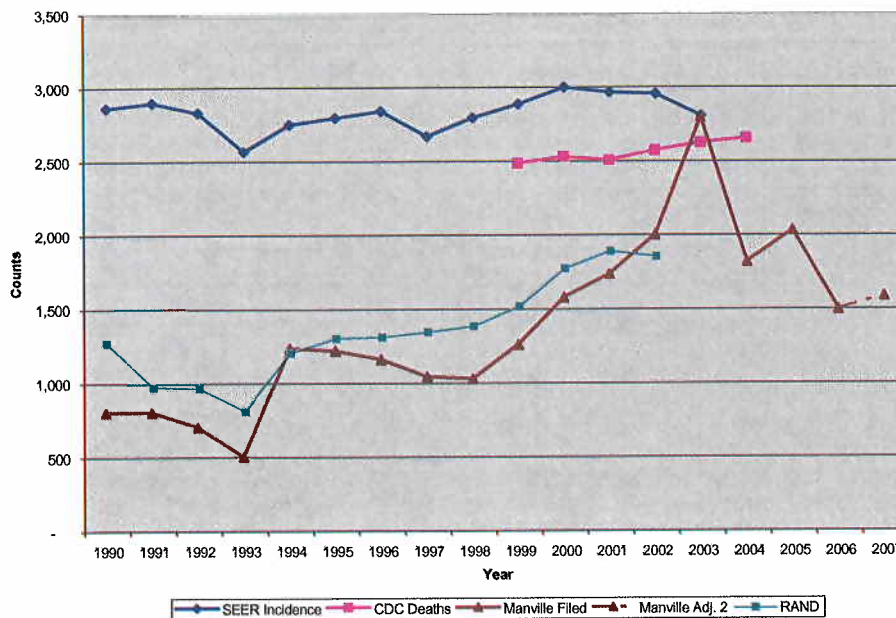
<sup>46</sup> The National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) Public-Use Data include SEER incidence and population data associated by age, sex, race, year of diagnosis, and geographic areas (including SEER registry and county).

<sup>47</sup> National Center for Health Statistics multiple cause of death records where mesothelioma was an underlying cause of death or a contributing cause of death. Source: National Occupational Respiratory Mortality System (NORMS), available at <http://webappa.cdc.gov/ords/norms.html>.

<sup>48</sup> The "Manville Adj." point in Chart 5 reflects 1,057 actual U.S. mesothelioma claims filed through August 31, 2007 annualized to 1,586 by multiplying by 12/8.

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**CHART 5 – Mesothelioma Incidence, Deaths, and Claims**



As noted above, the historical portion of Tillinghast's benchmark pattern was selected considering the actual filing levels from various sources.

Grace's historical share of the total filing level is calculated as:

$$(\text{Grace historical claims}) / (\text{benchmark total historical claims})$$

Tables showing the results of this calculation broken out by filing year and jurisdiction, and performed separately for mesothelioma, lung cancer, other cancer, and nonmalignant claims are set forth in my reliance materials at Analysis Documentation: Section II, Exhibit 7. Due to the observed effect of tort changes in many of the states where mass consolidations were historically prevalent, I use nonmalignant benchmark patterns by state for those states where tort changes have recently been adopted.

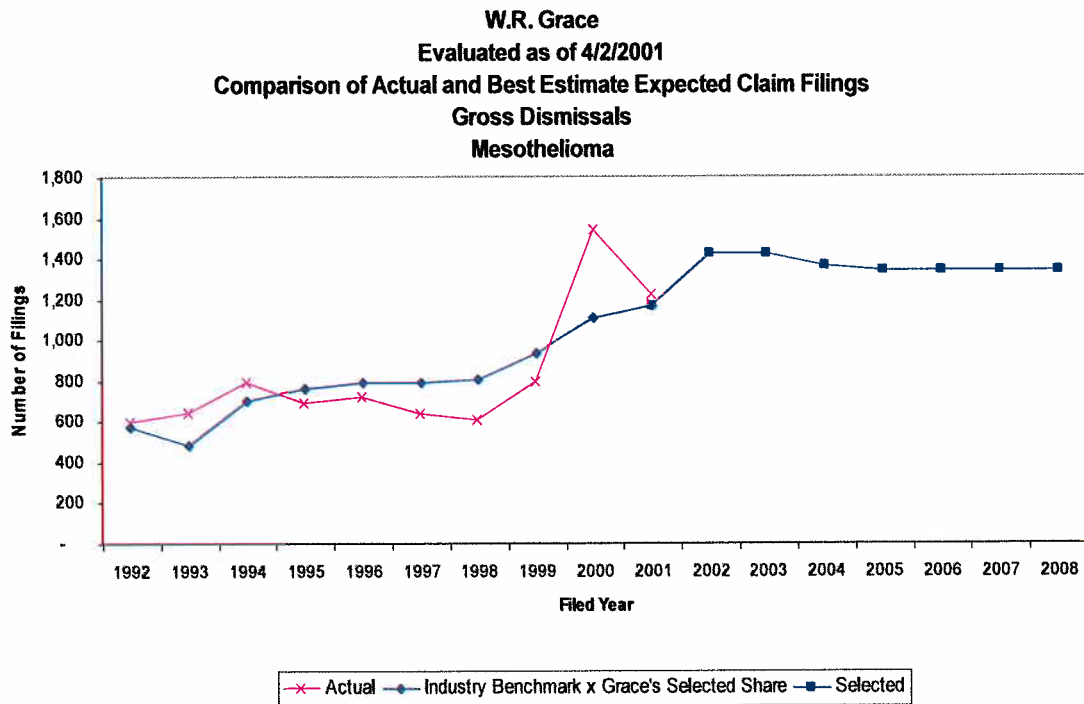
My selected ratios of Grace's historical shares (across all states) vary somewhat depending on the disease, as follows:

- Historical mesothelioma share = 58.4%
- Historical lung cancer share = 60.9%
- Historical other cancer share = 64.6%
- Historical nonmalignant share = 70.6%

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A comparison of Grace's actual annual historical claim filings and the expected number of claims filed, reflecting Grace's selected share of the benchmark is shown graphically for each disease type below. In these charts, the expected level of claims by year equals Tillinghast's benchmark pattern of the "universe" of claims filed by disease, multiplied by Grace's historical share of the claim filings.

**CHART 6**



Note:

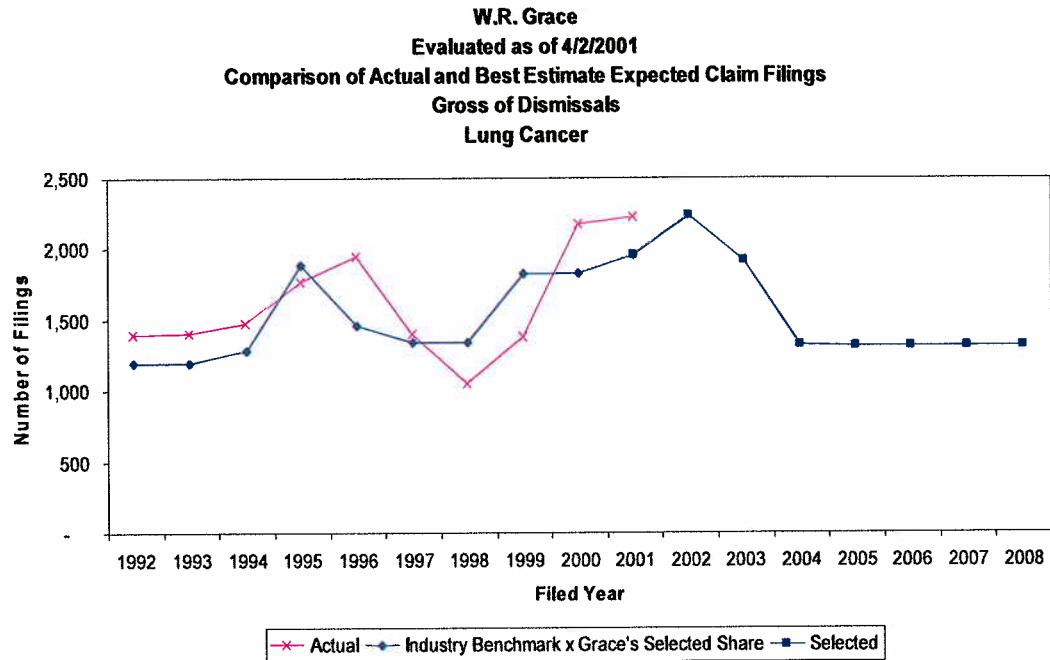
Based on Section II, Exhibit 7, Sheet 1.

2001 is actual through 4/2/2001 and projected through 12/31/2001.



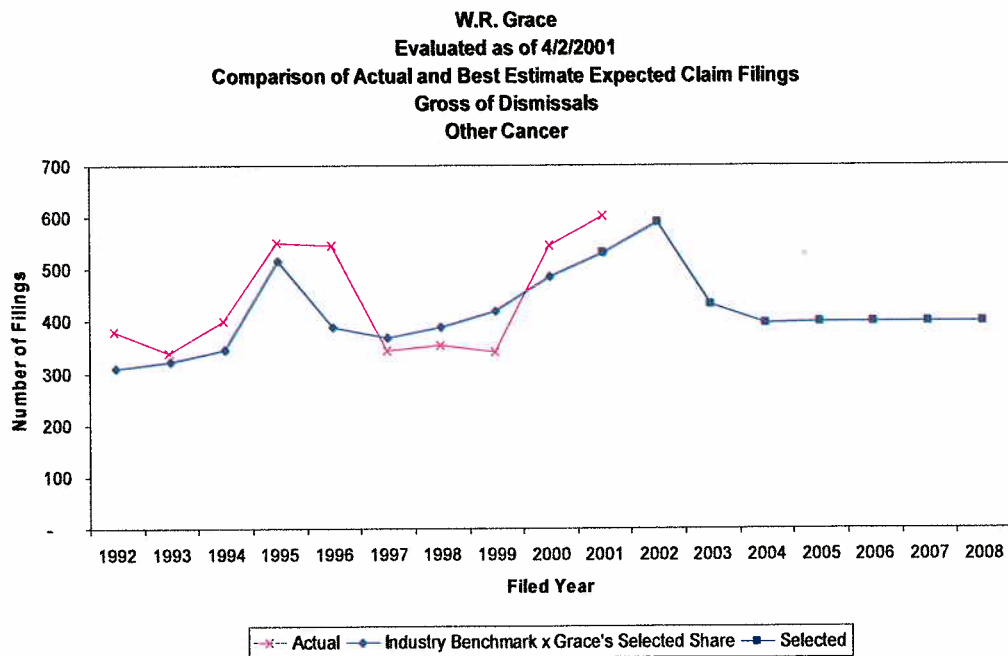
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**CHART 7**



Note:  
Based on Section II, Exhibit 7, Sheet 2.  
2001 is actual through 4/2/2001 and projected through 12/31/2001.

**CHART 8**



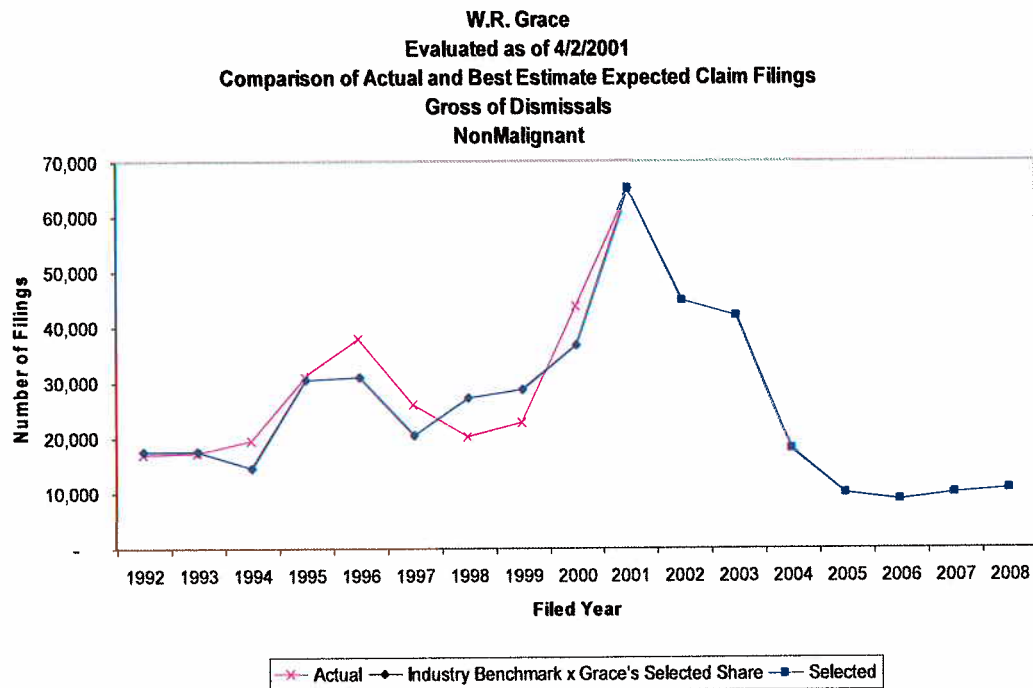
Note:  
Based on Section II, Exhibit 7, Sheet.  
2001 is actual through 4/2/2001 and projected through 12/31/2001.



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Cancer can be due to non-asbestos causes and claim filings are more volatile, subject to claimant recruitment efforts.

**CHART 9**



Note:

Based on Section II, Exhibit 7, Sheet 3.

2001 is actual through 4/2/2001 and projected through 12/31/2001.

For nonmalignant claims, mass screening activities resulted in record filing levels through 2003. Beginning in 2004, several states changed their laws to restrict claims by the unimpaired, and there has been a sharp decline in nonmalignant filings since then.

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When selecting Grace's shares, I accounted for aberrations in the annual ratios of claims filed due to moratorium agreements that Grace had with several plaintiff law firms. These agreements tended to understate claim filings against Grace for 1997 – 1999, and often resulted in a surge in claims after the agreements ended in 2000.<sup>49</sup> Therefore, while ratios of Grace's claim filings relative to the industry often appear low from 1997 – 1999, they are often higher in 2000 – 2001. To correct for the annual aberrations, I selected shares based on the 1997 – 2001 span of years.

Some of the moratorium agreements began in 1999 and 2000 and remained in effect as of the petition date, thereby potentially understating Grace's shares of historical claim filings by disease. However, I did not speculate on the level of filings that might be missing from historical experience through 2001. It is reasonable to assume, however, that if Grace had not entered bankruptcy, a surge of filings (similar to 2000) would likely have occurred after these moratoria ended. However, the extent to which other defendants were also participating in moratorium agreements, influencing the total number of claims filed across all defendants in each year is not clear, and there is no reasonable factual basis to support a specific adjustment for a possible future surge in future claims once the moratoria ended.

The following table lists the Grace moratorium agreements of which I am aware.

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<sup>49</sup> The effect of moratorium agreements on the filing patterns against Grace can be seen at both the national and state level, and by disease. At the national level, for example, the moratorium with Ness Motley ran from December 31, 1996 to December 31, 1999. In 1996 the firm filed 296 claims against Grace, but filed only 111 claims in 1997 and 1998 (when certain exceptional cases were permitted under the agreement). When the moratorium ended the firm filed 865 claims in 1999 and another 1,028 in 2000. Taylor & Cire's moratorium ran from September 1, 1999 to August 1, 2002. The firm filed 2,271 claims against Grace in 1998, only 125 from 1999 to 2001, and then 2,132 in 2002 after the moratorium expired. Other illustrative examples can be seen at the state and disease level. Weitz & Luxenberg's moratorium was from September 14, 1992 to December 31, 1997. From 1993 through 1996 the firm filed a total of 27 mesothelioma claims against Grace in New York. In 1997 the firm filed 101 mesothelioma claims against Grace in New York. Provost & Umphrey's moratorium ran from December 31, 1996 to December 31, 1999. From 1994 – 1996 the firm filed 50 mesothelioma claims against Grace in Texas, but from 1997 – 1999 they filed only 4 such claims. Finally, Baron & Budd's moratorium was in place for all of 1998. The firm filed 92 mesothelioma claims against Grace in Texas in 1996 – 1997, none in 1998, and 49 in 1999 – 2000.

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**TABLE 13 – MORATORIUM AGREEMENTS**

	Law Firm Reaching Agreement	Moratorium Begin Date	Moratorium End Date	In Effect Until at Least Last Day of Year						
				1995	1996	1997	1998	1999	2000	4/2/2001
1	Baron & Budd	12/1/1997	11/30/1999			yes	yes			
2	Campbell, Cherry, Harrison, Davis & Dove	9/1/1999	8/1/2002					yes	yes	yes
3	Cumbest, Cumbest, Hunter & McCormick	2/1/1999	8/1/2002					yes	yes	yes
4	David O. McCormick, Paul T. Benton	2/1/1999	8/1/2002					yes	yes	yes
5	Goldberg Persky	10/16/1997	12/31/1999			yes	yes	yes		
6	Lewis & Lewis	2/1/1999	8/1/2002					yes	yes	yes
7	Louis S. Robles	7/1/1999	1/7/2002					yes	yes	yes
8	Morris, Sakalarios & Blackwell	1/1/2000	12/31/2001						yes	yes
9	Ness Motley, Loadholt, Richardson & Poole	12/31/1996	12/31/1999			yes	yes	yes		
10	Nix	12/31/1996	12/31/1999			yes	yes	yes		
11	Norris, Morris, Sakalarios and Phelps	1/1/2000	12/31/2001						yes	yes
12	Provost & Umphrey	12/31/1996	12/31/1999			yes	yes	yes		
13	Reaud, Morgan & Quinn	9/21/2000	NA						yes	yes
14	Rhoden, Lacy, Downey & Colbert	2/1/1999	8/1/2002					yes	yes	yes
15	Robins, Cloud, Greenwood & Lubel	8/18/2000	7/1/2001						yes	yes
16	Scruggs, Millette, Bozeman & Dent	2/1/1999	8/1/2002					yes	yes	yes
17	Taylor & Cire	9/1/1999	8/1/2002					yes	yes	yes
18	Weitz & Luxembourg	9/14/1992	12/31/1997	yes	yes	yes				
19	Williams & Bailey	11/30/1996	12/31/1999			yes	yes	yes		
20	Williams & Bailey/Provost & Umphrey	11/30/1996	12/31/1999			yes	yes	yes		
Count of # of Moratorium Agreements				1	1	8	7	14	12	12

## 2. Expected Future Filings

As summarized above, for my prior work I reviewed studies of future claims experience performed by Eric Stallard and Kenneth Manton in connection with fairness hearings on the Manville Trust.<sup>50</sup> That claims run-off analysis was prepared in 1993-1994 and was based on 2 1/2 years of claims filed against the Manville Trust from January 1, 1990 through June 30, 1992 (including approximately 2,000 mesothelioma claims). Stallard & Manton's manufacturer model estimated the size of the population of workers exposed to asbestos from 1915 to 1974 who are (or were) still alive to generate claims in the future. Stallard & Manton moved the population forward in time using mortality and morbidity assumptions based on epidemiological studies. Their study adjusted the claim frequency rates based on Manville's actual claim experience through

<sup>50</sup> Research done by Eric Stallard and Kenneth Manton of the Duke University Center for Demographic Studies (Stallard & Manton) reports dated August 31, 1993 (draft) and February 21, 1994 (draft).

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**TABLE 17****Selected Dismissal Rates<sup>53</sup>**

	<b>Recent Pending &amp; Future</b>	<b>Pending, Reflecting Additional Dismissals for Filed Years 1996 &amp; Prior</b>
Mesothelioma	21.6%	31.7%
Lung Cancer	20.3%	27.2%
Other Cancer	20.2%	24.5%
Nonmalignant – Filed & Settled Pre-2004	19.8%	Average Nonmalignant 37.0%
Nonmalignant – Filed Pre-2004, Settled 2004+	65.9%	Average Nonmalignant 37.0%
Nonmalignant – Filed Post-2004+	43.2%	N/A
Total		36.0%

In determining the above dismissal rates for recent pending and future claims, I gave greater consideration to the amounts that Grace paid from 1997 – 2001. For older pending claims, filed in 1996 and earlier, I applied higher dismissal rates to account for Grace's higher historical dismissal rates in earlier Settlement Years.<sup>54</sup> Tables showing the dismissal rates I applied, broken out by disease, filed year and jurisdiction are set forth in my reliance materials at Analysis Documentation: Section II, Exhibit 3, Sheet 1 with additional details set forth in my reliance materials at Analysis Documentation: Section II, Exhibit 5.

**D. Step 4: Estimation of Future Average Payment Values**

The next step in my analysis was to calculate the expected average payments to claimants, trended to future Settlement Years. In doing so, I took several factors into account that result in changes from year to year in the average payment values that I applied in making my overall estimate of liability. I refer to the combined

<sup>53</sup> Selections by jurisdiction weighted based on pending claims.

<sup>54</sup> I determined the size of the adjustments after considering (i) the ratio of claims that (a) Grace settled with payment to (b) total closed claims (for the years up to and including 1996 ), relative to (ii) the same ratio for 1997 and later.

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adjustments used to change the average payments from one time period to another as “trending” the values to future years.

For historical periods, I rely on the upward trend apparent in Grace’s own settlement experience, compared to increases for other asbestos defendants during the relevant time periods. For future values, I take into account factors affecting average claim costs, including the effect of changes in the tort system, claimant aging, and inflation.

**1. Grace’s Historical Settlement Amounts**

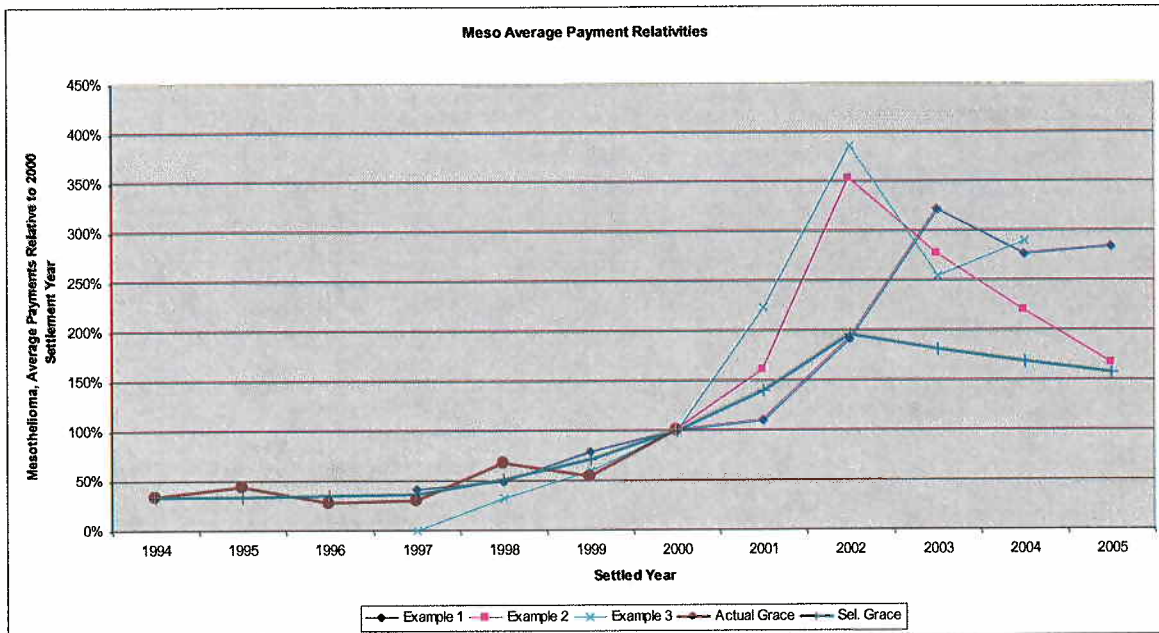
I calculated Grace’s average payments by disease and jurisdiction. I then trended the average paid amounts per claim that Grace closed with payment (after matching and allocation of unknown disease types) to arrive at a common level, at the midpoint of the 2001 Filed Year.<sup>55</sup> The trended average payment amounts are shown in my reliance materials at Analysis Documentation: Section II, Exhibit 4.

Based on my industry observations, average payment values for solvent defendants increased at a rate significantly higher than inflation from the late 1990s until 2002 – 2003. The chart below shows the huge increase in average payments made by solvent defendants through 2002 – 2003, followed by declines. Like most other solvent defendants, Grace’s average payments were increasing significantly, up to the time of its bankruptcy.

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<sup>55</sup> The midpoint of the 2001 Filed Year is July 1, 2001 and the average payment for the 2001 Filed Year reflects the average time lag from claim filing to claim payment.

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**CHART 14**

The chart above shows the relative change in average payment amounts for mesothelioma from one Settlement Year to the next, all relative to a 100% value in the 2000 Settlement Year. The comparison is shown for three examples of confidential client data compared to Grace's historical data and my selected trends for Grace.

I reviewed Grace's actual change in average payment amounts from 1994 through the petition date. The table below shows Grace's actual average annual changes in the averages by disease type. I combined the 15-month period of January 1, 2000 through April 2, 2001 to represent the baseline period for the trending analysis, and all other years are trended to this 15-month period. Thus, the "Severity" column reflects the average payment amount for a given disease by year; whereas the Annualized Trend column shows the annualized percentage change from a given Settled Year to the fifteen month 2000 – 2001 period.

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**TABLE 18****Historical Trends in Average Payments by Disease Type (\$thousands)**

Settled Year	Mesothelioma		Lung Cancer		Other Cancer		Nonmalignant	
	Avg. Paid (\$000s)	Annualized Trend to 00-01	Avg. Paid (\$000s)	Annualized Trend to 00-01	Avg. Paid (\$000s)	Annualized Trend to 00-01	Avg. Paid (\$000s)	Annualized Trend to 00-01
1994	29	21%	8	13%	4	15%	3	3%
1995	37	20%	7	21%	4	22%	2	12%
1996	24	38%	8	21%	3	30%	2	16%
1997	26	50%	7	33%	4	34%	2	14%
1998	58	24%	11	26%	6	32%	3	9%
1999	46	85%	11	56%	4	122%	2	41%
2000-2001	91		17		10		3	

Similar summaries of average annual changes in average payments by disease type across various time periods are set forth in my reliance materials at Analysis Documentation: Section II, Exhibit 3, Sheets 2 and 3. After considering Grace's historical average payments and year-to-year trends, I applied the following annual trend rates to bring the historical averages to the 2001 Filed Year level,<sup>56</sup> by disease type:

- Mesothelioma – 40%
- Lung Cancer – 35%
- Other Cancer – 35%
- Nonmalignant – 10%

Average payments by disease type based on differing groups of Settlement Years vary significantly. For mesothelioma, a comparison of Grace's average payments by jurisdiction is shown below. The "untrended" column is the average of actual payments during the time period. The "trended" values adjust the payments in each Settlement Year to the 2001 Filed Year basis, using the annual trend rates selected above.

<sup>56</sup> The 2001 Filed Year level reflects the average payment date for claims that will be filed in 2001. For example, a small percentage of claims filed in 2001 will be settled within the first few years, while others will not be settled for several years. I convert the average payments to the 2001 Filed Year basis, because this is how the average payments are presented and initially applied in my reliance materials at Analysis Documentation: Section II, Exhibit 2.

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**TABLE 19****Selected Average Payment Amounts – Mesothelioma (\$thousands)**

	Untrended 1998-01 Incl. LIQ	Trended Averages Including Liquidated Claims <sup>57</sup>				Selected
		1997-2001	1998-2001	1999-2001	2000-2001	
CA	\$ 80	\$ 163	\$167	\$172	\$183	\$ 167
FL	41	77	80	89	99	80
GA	140	243	272	295	321	94
IL	79	131	138	147	156	138
MS	35	82	82	66	71	94
NY	62	97	172	135	133	172
OH	55	92	120	79	106	94
PA	44	80	79	81	68	94
TX	100	236	236	184	242	236
WV	33	73	74	65	54	94
Libby MT	161	1,599	418	418	61	1,599
Other US	54	125	121	117	95	121
Sub-total	46	89	94	85	85	94
Total	71	152	157	138	145	158

I selected the trended 1998 – 2001 averages, recognizing that the averages are highest for this group of years.<sup>58</sup> The 1998 – 2001 trended averages are a reasonable base for future average payments, given that I have made no explicit adjustments for several factors that can reasonably be expected to have placed additional upward pressure on Grace's future settlement amounts. These include (i) increased focus on malignant claims, with fewer bundled settlements involving nonmalignant claims, (ii) fewer solvent

<sup>57</sup> Georgia, Mississippi, Ohio, Pennsylvania, and West Virginia have limited predictive reliability due to the low volume of historical claim payments and I rely on the average for the five states combined.

<sup>58</sup> My reliance materials at Analysis Documentation: Section II, Exhibit 4 show the data underlying historical average payment amounts by type of disease and state groups for claims closed with payment. My selected averages by state for the 2001 Filed Year are based on claims by disease (after matching, duplicate elimination, and allocation of remaining unknown disease type claims). My reliance materials at Analysis Documentation: Section II, Exhibit 4 at Sheet \*b show slightly higher average payments based on data after matching but before allocation. My reliance materials at Analysis Documentation: Section II, Exhibit 4 at Sheet \*c show the average payments for the original CMS data by CMS Illness Type, which are similar to the averages after matching, but before allocation.



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co-defendants being named along with Grace, due to the high number of asbestos bankruptcies of target defendants and Grace's later product exposure, (iii) the negative publicity surrounding Libby and the criminal indictment of Grace and some of its senior executives, (iv) the ongoing ATSDR review of Grace vermiculite sites, and (v) the August 2007 television documentary regarding Libby, "Asbestos: Hidden in Plain Sight."

## 2. Future Average Payment Values

Based on industry information (such as shown above in Chart 14), I expect that Grace's average claim payment amounts would have continued to increase through at least 2002 at a significant rate. For example, mesothelioma claim values appear to have peaked in 2002 or 2003.

For my estimation of future average payment values, I applied the historical trends for each disease type selected above (e.g., 40% for mesothelioma) through the 2002 Settled Year. I then impose a decline in the average claim values from 2003 to 2005 of 10% per year to reflect observed changes for solvent defendants, that may be attributable to changes in the tort system such as venue restrictions and joint and several liability. I then assume a 1% increase per year for five years beginning in 2006, relating to expected increases in plaintiff demands. I assume a 3% annual increase each year to reflect inflation and I also assume there will be a 1% annual reduction in claim values beginning in 2006 for 15 years to reflect lower expected awards as claimants age. The combination of all of these changes result in the composite annual trend used to adjust my selected 2001 Filed Year average payments to different time periods.

### a. Claimant Aging Adjustment

I reduced the average claim values by 1% per year for 15 years (2006 – 2020) to reflect lower expected awards due to claimant aging. The table and chart below show the historical average payments against Grace for the mesothelioma claims by claimant age. The averages reflect payments over the period from 1998 to 2001. The column "CWP Counts" shows the number of claimants in each age group with claims that closed with pay during Settlement Years 1998 – 2001. The "Average Payment